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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER	
TSEGAYE, SABA	

ART UNIT	PAPER NUMBER
2662	

DATE MAILED: 01/09/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/778,478	AMALFITANO, CARLO	
	Examiner	Art Unit	
	Saba Tsegaye	2662	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1 and 3-24* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1 and 3-24* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. This Office Action is in response to the amendment filed on 10/28/05. Claims 1 and 3-24 are pending. Currently no claims are in condition for allowance.

Claim Rejections - 35 USC § 103

2. Claims 4-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hou et al. (US 6,324,184) hereafter Hou in view of Dillon et al. (US 6,473,793) hereafter Dillon.

Regarding claims 4 and 11, Hou discloses a method for providing multiple grades **("weighing factor"; see col. 11 lines 10-31)** of service in a demand access wireless communication system, in which identifying a priority level of a user requesting allocation of bandwidth for transmitting data information to a base station depending on whether a previous historical usage of resources by that user exceeds a predetermined threshold **(alternatively or in addition, a maximum (e.g., ceiling) bandwidth can be imposed on the user** (column 11, lines 46-47)), such that, if the previous historical usage by the user is lower than the threshold, the user is assigned a higher priority level for transmitting data information, the higher priority level entitling the user use of more channels than otherwise allowed when a lower priority level is assigned and allocating bandwidth to the user depending upon the corresponding priority level so identified **(The MAC management entity may maintain a historical record of bandwidth usage for each user. Then, users who have relatively low usage levels may be given higher priority when requesting a bandwidth level that might otherwise be limited; for example see col. 11 lines 50-60)**. The MAC allocates data bandwidth on **channels according to the type**

of service. Further, Hou discloses that there may be a concern that the dynamic bandwidth allocation scheme never reduces the assigned bandwidth of a user when the user continually uses all of its assigned bandwidth. In this case some of the bandwidth assignment of user in question can be redistributed to other users who use all or most of their assigned bandwidth (column 11, lines 36-46). However, Hou does not expressly disclose that if the previous historical usage by the user is higher than the threshold, the user is assigned a lower priority level for transmitting data information.

Dillon teaches that historically low data throughput users can get high data throughput volumes on a periodic bases, while historically high data throughput users are throttled when they abuse system resources. To implement throttling based on historical usage patterns, a hybrid gateway compares the thresholds defined for a requesting terminal's level of service and its measures running average data throughput to determine if the requesting terminal's bandwidth should be reduced (throttled) (column 16, lines 19-24; lines 59-column 17 line 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hou's apparatus to assign a user a lower priority level for transmitting data if historical usage by the user is higher than a threshold, as taught by Dillon in order to ensure that historically low data throughput users can get high data throughput volumes on a periodic basis, while historically high data throughput users are throttled when they abuse system resources and to provide a system that ensure fair access to the appropriate level of system resources contracted for each subscriber as explained by Dillon on column 1, lines 54-55.

Regarding, "a lower priority level entitling the user to use of fewer channels than otherwise allowed when a higher priority level is assigned", as stated above, Hou discloses that

the MAC allocates data bandwidth on channels according to the type of service. The higher priority level entitles the user to use more channels (column 11, lines 50-60).

Dillon, further, teaches that the hybrid gateway changes the first data rate (high priority level) to the second data rate (reduced data rate; a lower priority) when measured running average data throughput exceeds the threshold rate of data transferred to each of requesting terminals.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hou's apparatus to assign a lower priority level that entitles the user fewer channels than otherwise allowed when a higher priority level is assigned, as taught by Dillon in order to ensure fair access to the appropriate level of system resources contracted for each subscriber.

Regarding claims 5 and 12, Hou discloses a method wherein the priority level for transmitting data defines a maximum continuous allocation of resources entitled to the user to transmit data information from a subscriber unit to the base station over multiple assigned traffic channels of the wireless communication system (col. 2, lines 52-56).

Regarding claims 6 and 13, Hou discloses all the claim limitations as stated above. Further, Hou discloses that it is possible to use a timing mechanism. Furthermore, Hou discloses that assigned bandwidth may be based on a subscriber unit bandwidth usage history, time of day, or other factors. However, Hou does not expressly disclose: a) detecting whether a time limit for

allocated channels has been exceeded for a continuous transmission of data; and b) decreasing the priority level of a field unit to a lower level.

a) Dillon teaches that a user's state depends on the user's service plan and the user's running average throughput. The running average throughput or the time-average data rate is maintained using a leaky bucket approach. The bucket thresholds determine the size of bursts that can be sustained by a user for an amount of time without the user's data throughput being throttled. If the amount of data in the user's bucket exceeds any of the thresholds, the user is placed in a corresponding throttled sated (column 15, lines 20-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a method that detects whether a time limit for previously assigned channels has been exceeded for a continuous transmission of data, such as that suggested by Dillon, to the method of Hou in order to optimize bandwidth utilization and maintain a minimum bandwidth for each subscriber unit. It would provide a fair communication system to all users.

b) Dillon teaches that if the amount of data in the user's bucket exceeds any of the thresholds, the user is placed in a corresponding throttled state (column 15, lines 20-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a method that assigns a lower priority level if historical usage by user is higher than the threshold, such as that suggested by Dillon, to the dynamic bandwidth allocation scheme of Hou in order to ensure fair and proportional bandwidth allocation between multiple priority level. One of ordinary skill in the art would have been motivated to do this because it would

optimize bandwidth channel usage in communication network by tailoring the assigned bandwidth to actual user requirements.

Regarding claims 7 and 14, Hou discloses a method wherein a user is allocated resources depending on a cumulative amount of data information previously transferred from a subscriber unit to a base station (column 10, lines 25-41).

Regarding claims 8 and 15, Hou discloses a method wherein the threshold defines a cumulative amount of data information that a user can transmit over specified period of time without being a lower priority level (column 9, lines 45-60).

Regarding claims 9 and 16, Hou discloses that the thresholds are adjustable.

Regarding claims 10 and 17, Hou discloses that the MAC management entity maintains a historical record of bandwidth usage for each user. Furthermore, Hou discloses that assigned bandwidth may be based on a subscriber unit bandwidth usage history, time of day, or other factors. However, Hou does not expressly disclose that the historical usage of resources is determined by comparing usage over a period of at least several past days.

Dillon teaches that historical usage patterns for a number of days may be generated once per day. For example, a user's historical usage over the past "N" days will be generated and compared to a user's service plan to determine if the user should be in an exempt plan for low-usage users or a non-exempt plan for high-usage users (column 16, line 65-column 17, line 5).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a method that maintains a record for at least several past days, such as that suggested by Dillon, to the dynamic bandwidth allocation scheme of Hou in order to know how often subscribers accesses the communication system, so to ensure fair and proportional bandwidth allocation.

Regarding claims 18-24, Hou in view of Dillon discloses all the claim limitations as stated above. Further, Hou discloses that the management entity may be implemented in hardware and /or software.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use software-based machines. The benefit using computer-usable medium device is that programs can be changed and upgraded and new futures are added easily than hardware changes.

3. Claims 1 and 3 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hou et al. in view of Dillon et al. and Honkasalo et al. (US 6,101,176) hereafter Honkasalo.

Regarding claim 1, Hou discloses a method of providing multiple grades of wireless service to multiple field users for communication of data between a base station and multiple subscriber units (figure 5) over one or more CDMA communication channels, each grade of service having a corresponding priority level (**"weighting factor"; see col. 11 lines 10-31**);

Hou discloses reserving a bandwidth and dividing the bandwidth into a plurality of channels (**central controller 210 allocates bandwidth on the transmission path 220 to**

manage communications between the subscriber units and the central controller. Path 220' may comprise one or more channels shared among the subscriber units; for example see col. 3 lines 62-67);

Hou discloses maintaining a connection between multiple subscriber units and the base station (**See figure 5; The system maintains a minimum bandwidth for each subscriber unit; and maintains a count of the number of active users on each channel; for example see col. 8 lines 7-14 and col. 9 lines 1-7**);

Hou discloses detecting a request by multiple field units to simultaneously transmit data to the base station (**The MAC provides for collision detection and contention access, where users are requesting access to the same slot at the same time; see col. 6 lines 32-67 and col. 7 lines 1-5**);

Hou discloses identifying a priority level of a user requesting allocation of bandwidth for transmitting data information to the base station depending on whether a previous historical usage of resources by the user exceeds a predetermined threshold (**alternatively or in addition, a maximum (e.g., ceiling) bandwidth can be imposed on the user** (column 11, lines 46-47)) (**The MAC management entity may maintain a historical record of bandwidth usage for each user and the MAC management entity may further allocate bandwidth according to historical profile of total channel bandwidth usage**), such that:

if the previous historical usage by the user is lower than the threshold, the user is assigned a higher priority level for transmitting data information, the higher priority level entitling the user use of more channels than otherwise allowed when a lower priority level is assigned (**The MAC management entity may maintain a historical record of bandwidth**

usage for each user. Then, users who have relatively low usage levels may be given higher priority when requesting a bandwidth level that might otherwise be limited; for example see col. 11 lines 50-60) and;

Hou discloses assigning the channels for communication between the base station and subscriber units based on the corresponding priority level of requesting field units so identified, **(The MAC management entity may maintain a historical record of bandwidth usage for each user. Then, users who have relatively low usage levels may be given higher priority when requesting a bandwidth level that might otherwise be limited; for example see col. 11 lines 50-60)**.

Hou discloses that the MAC management entity allocates bandwidth according to a historical profile of total channel bandwidth usage. However, Hou does not expressly disclose that if the historical usage by the user is higher than the threshold, the user is assigned a lower priority level.

Dillon teaches that historically low data throughput users can get high data throughput volumes on a periodic bases, while historically high data throughput users are throttled when they abuse system resources. To implement throttling based on historical usage patterns, a hybrid gateway compares the thresholds defined for a requesting terminal's level of service and its measures running average data throughput to determine if the requesting terminal's bandwidth should be reduced (throttled) (column 16, lines 19-24; lines 59-column 17 line 39).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hou's apparatus to assign a user a lower priority level for transmitting data if historical usage by the user is higher than a threshold, as taught by Dillon in order to ensure

that historically low data throughput users can get high data throughput volumes on a periodic basis, while historically high data throughput users are throttled when they abuse system resources and to provide a system that ensure fair access to the appropriate level of system resources contracted for each subscriber as explained by Dillon on column 1, lines 54-55.

Regarding, "a lower priority level entitling the user to use of fewer channels than otherwise allowed when a higher priority level is assigned", as stated above, Hou discloses that the MAC allocates data bandwidth on channels according to the type of service. The higher priority level entitles the user to use more channels (column 11, lines 50-60).

Dillon, further, teaches that the hybrid gateway changes the first data rate (high priority level) to the second data rate (reduced data rate; a lower priority) when measured running average data throughput exceeds the threshold rate of data transferred to each of requesting terminals.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Hou's apparatus to assign a lower priority level that entitles the user fewer channels than otherwise allowed when a higher priority level is assigned, as taught by Dillon in order to ensure fair access to the appropriate level of system resources contracted for each subscriber.

Hou in view of Dillon discloses all the claim limitations as stated above. Further, Hou discloses the capability for a wireless network adaptation (col. 3 lines 55-57), but fails to expressly disclose where the communication is a CDMA communication and that the central

controller is a base station and the subscriber units are units that are able to communicate wirelessly over CDMA channels.

Honkasalo discloses a CDMA based cellular network that provides a wireless connection to the subscribers for voice and data (**figure 7 shows a base station 316 with multiple mobile subscribers in the building 300: for example see col. 6 lines 59-67 and col. 26 lines 1-7**).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify Hou's apparatus to utilize a CDMA cellular system with the base station as a central controller communicating to the subscribers through a wireless medium, as taught by Honkasalo. The motivation is that CDMA provides a wireless system that provides a relatively greater bandwidth capacity than other wireless systems. This fits the needs of increased applications for wireless data transmission, such as facsimiles and Internet access, and video transmission, as explained by Honkasalo on column 1, lines 20-30 and column 2, lines 10-25.

Regarding claim 3, Hou discloses all the claim limitations as stated above. Further, Hou discloses that it is possible to use a timing mechanism. Furthermore, Hou discloses that assigned bandwidth may be based on a subscriber unit bandwidth usage history, time of day, or other factors. However, Hou does not expressly disclose: a) detecting whether a time limit for allocated channels has been exceeded for a continuous transmission of data; and b) decreasing the priority level of a field unit to a lower level.

a) Dillon teaches that a user's state depends on the user's service plan and the user's running average throughput. The running average throughput or the time-average data rate is maintained using a leaky bucket approach. The bucket thresholds determine the size of bursts

that can be sustained by a user for an amount of time without the user's data throughput being throttled. If the amount of data in the user's bucket exceeds any of the thresholds, the user is placed in a corresponding throttled sated (column 15, lines 20-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a method that detects whether a time limit for previously assigned channels has been exceeded for a continuous transmission of data, such as that suggested by Dillon, to the method of Hou in order to optimize bandwidth utilization and maintain a minimum bandwidth for each subscriber unit. It would provide a fair communication system to all users.

b) Dillon teaches that if the amount of data in the user's bucket exceeds any of the thresholds, the user is placed in a corresponding throttled state (column 15, lines 20-53).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to add a method that assigns a lower priority level if historical usage by user is higher than the threshold, such as that suggested by Dillon, to the dynamic bandwidth allocation scheme of Hou in order to ensure fair and proportional bandwidth allocation between multiple priority level. One of ordinary skill in the art would have been motivated to do this because it would optimize bandwidth channel usage in communication network by tailoring the assigned bandwidth to actual user requirements.

Response to Arguments

4. Applicant's arguments with respect to claims 1 and 3-24 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Saba Tsegaye whose telephone number is (571) 272-3091. The examiner can normally be reached on Monday-Friday (7:30-5:00), First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hassan Kizou can be reached on (571) 272-3088. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

ST
January 4, 2006

JOHN PEZZLO
PRIMARY EXAMINER